

USSR

LAZER, I. M., et al., Otkrytiya, izobreteniya, promyshlennyye obratovarnyye znaki, 1970, No 35, Soviet Patent No 287121, class 21, fil. 14 Aug 68, published 19 Nov 70, p 64

of the diodes are connected to the "add" and "subtract" inputs respectively. The diode outputs are connected to the set terminals of the COMBINATIONAL flip-flops for all following digital positions.

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USSR

UDC 621.374.32

SHUBAREV, V. A., OVSISHCHER, P. I., LAZER, I. M.

"A Reversible Shift Register"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, 1970, No 33, Soviet Patent No 285064, class 21, filed 4 Jul 69, published 29 Oct 70, pp 42-43

Translation: This Author's Certificate introduces a reversible shift register with data transmission in direct code. A digital place contains two commutation flip-flops and a storage flip-flop which are based on potential AND-NOT (NOR) logic elements. As a distinguishing feature of the patent, the circuit is simplified and speed is increased by adding an auxiliary AND-NOT (NOR) logic element in each digital place. This additional logic element is coupled by a flip-flop to the zero branch of the storage flip-flop. The second input of the auxiliary element is connected to the set terminal of the storage flip-flop, and the third input is connected to the "left shift" line. The output of the auxiliary element is connected by interdigit coupling to the input of the first commutation flip-flop of the preceding digital place, and the one-output terminal of the storage flip-flop is connected by interdigit coupling to the input of the first

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SHUBAREV, V. A., et al., Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, 1970, No 33, Soviet Patent No 285064, class 21, filed 4 Jul 69, published 29 Oct 70, pp 42-43

commutation flip-flop of the next digital place. The auxiliary input of the ones arm of the storage flip-flop is connected to the "right shift" line.

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USSR

UDC 621.396.677.71

SHUBARIN, YU. V., CHEBOTAREV, V. I.

"Polarization Diagram of Slot Waveguide Radiators with Controllable Polarization"

Antennofidern. i izmerit. ustroystva sverkhvysok. chastot -- V sb (Superhigh-Frequency Antenna Feeder and Measuring Devices -- Collection of Works), Khar'kov, Khar'kov University, 1971, pp 3-10 (from RZh-Radiotekhnika, No 10, Oct 71, Abstract No 10B28)

Translation: A study was made of the lattice of diagonal slots which were cut in the wide wall of a rectangular waveguide excited by a H_{01} wave from both ends. The polarization diagram of this antenna is controlled by varying the ratio of the amplitudes and phase difference of the waves exciting the waveguide. The field in the far zone is found by means of the vectorized Kirchhoff integral. It is demonstrated that the system has two partial phase centers corresponding to excitation of the waveguide from the right and left. An expression is obtained for determining the distance of the phase centers to the axis passing through the centers of the slots. The dependencies of this distance on the polar angle are presented for a nine-element lattice of diagonal

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SHUBARIN, YU. V., et al., Antennofidern. i izmerit. ustroystva sverkhvysok. chastot, Khar'kov, Khar'kov University, 1971, pp 3-10

radiators with an identical radiation factor. The variation of the polarization characteristics of the field within the limits of the main lobe of the direction-
alness diagram for given polarization in the direction of the main peak is determined by the coordinates of the partial phase centers of radiation of the lattice. It is noted that the results obtained for a one-dimensional system are also valid for a two-dimensional system. There are 4 illustrations and a 2-entry bibliography.

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USSR

UDC: 621.371:621.3.088.2

SHIBARIN, Yu. V., VASIL'YEVA, Ye. A.

"Investigation of Errors in Measuring the Polarization Parameters of Radio Waves"

Radiotekhnika. Resp. mezhved. temat. nauch.-tekhn. sb. (Radio Engineering. Republic Thematic Interdepartmental Scientific and Technical Collection), 1971, vyp. 17, pp 61-68 (from RZh-Radiotekhnika, No 3, Mar 72, Abstract No 3A362)

Translation: Formulas are derived for evaluating the errors of measurement of the semiaxis ratio and the orientation of the semimajor axis of a polarization ellipse by one- and two-antenna methods with circular polarization, and by a two-antenna method with circular polarization [sic]. Graphs of the errors are constructed for these methods and a comparative evaluation is made. Eight illustrations, bibliography of six titles. Résumé.

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1/2 020 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--MASS SPECTROMETRIC STUDY OF THE COMPOSITION OF THE VAPOR OVER ALCL
SUB3 .POCL SUB3 -U-
AUTHOR-(03)-SHUBAYEV, V.L., SUVOROV, A.V., SEMENOV, G.A.

COUNTRY OF INFO--USSR

SOURCE--ZH. NEORG. KHIM. 1970, 15(4), 939-40

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--ALUMINUM COMPOUND, CHLORIDE, MASS SPECTROMETER, MASS
SPECTROSCOPY, VAPOR STATE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1999/1076

STEP NO--UR/0078/70/015/004/0939/0940

CIRC ACCESSION NO--AP0123069

UNCLASSIFIED

2/2 020

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0123069

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. MASS SPECTRA OF 150DEGREES VAPOR ABOVE THE ALCL SUB3-POCL SUB2 SYSTEM SHOWED HIGH CONC. OF ALPOCL SUBN PRIME POSITIVE (N EQUALS 2-6). THE SUM OF RELATIVE INTENSITIES OF ION CONTG. AL (210) WAS CLOSE TO THE SUM OF RELATIVE INTENSITIES OF IONS CONTG. P (240). SINCE THE VOLATILITIES OF ALCL SUB3 AND POCL SUB2 VARY MARKEDLY UNDER THE EXPTL. CONDITIONS, ONE ASSUMES THAT APPROX. THE SAME RELATIVE INTENSITIES OCCUR DUE TO DISSOCIATIVE IONIZATION IN THE VAPOR PHASE. THE PRESENCE OF ALPOCL SUB2 SHOWS THAT THE ADDUCT IS BOUND VIA THE O ATOM.

UNCLASSIFIED

USSR

UDC 681.332.4

SHUBENKO, V. A., KULESSKIY, R. A.

"Device for Modeling Process of Amplitude Quantization"

USSR Author's Certificate No. 273534, Filed 21/04/69, Published 14/09/70
(Translated from Referativnyy Zhurnal Avtomatika, Telemekhanika i Vychislitel'-
naya Tekhnika, No. 4, 1971, Abstract No. 4B134P).

Translation: The device suggested relates to analog computer modeling equipment and can be used to model digital control systems. A device for modeling the process of amplitude quantization is described in author's certificate No. 244731 in which the generator of the first derivative of the signal being quantized is connected to one of the inputs of an adder through an integrator with a relay element in the feedback circuit. The second input of the relay element is connected to a generator producing the first derivative of the signal to be quantized, and an uncontrolled diode element with a zone of insensitivity is connected between the output of the relay element and the input of the integrator. However, the accuracy of operation of this device during quantization of rapidly changing signals is not high due to the error in determination of the moment of disconnection of the relay element, since during the time required for the signal of the integrator to change by the value of one quantization step the signal being quantized changes by a certain degree. The device suggested differs from the

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UDC 681.332.4

SHUBENKO, V. A., KULESSKIY, R. A., USSR Author's Certificate No. 273534, Filed 21/04/69, Published 14/09/70.

known device in that it includes a controlled diode element with a zone of insensitivity, the inputs of which are connected to the source of the input signal and to the output of the uncontrolled diode element with the zone of insensitivity, while the output is connected through a memory element consisting of an operational amplifier to the input of the relay element. These differences increase the accuracy of quantization of the input signal over a broad range of frequencies.
1 fig.

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USSR

UDC: 539.4

SHUBENKO-SHUBIN, L. A., Khar'kov

"Development of Steam Turbine Construction and Problems of the Strength and Reliability of Powerful Turbine Unit Elements"

Kiev, Problemy Prochnosti, No 11, Nov 72, pp 82-87.

Abstract: In the next 10-15 years, the primary trend in the development of turbine building will be increasing the economy, power capacity and reliability of turbine units. Initial steam parameters will rise above 240 atm. abs. and 560°C, the limit currently dictated by steel characteristics. Among the specific, most pressing problems in research ahead to allow the use of steam at these increased parameters is the task of development of methods of calculation of the strength, durability and form change of thick-wall envelopes of rotation considering creep and thermal fatigue under the influence of axisymmetrical unstable temperature fields and internal and external pressure fields. The first one million kilowatt steam turbines will probably be constructed by the end of this decade. The development of strength criteria considering the properties and peculiarities of the materials of products, operating conditions, service lives, etc. is a pressing problem.

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Acc. Nr:

AP0052092

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Ref. Code: UR0475

PRIMARY SOURCE: Vrachebnoye Delo, '1970, Nr 2 , pp 94-96

DISEASES OF THE OF CONFABULATION IN PATIENTS WITH VASCULAR
DISEASES OF THE RIGHT CEREBRAL HEMISPHERE

I. Ye. Shubenko-Shubina (Baku)

A clinical description is presented of the confabulation syndrome in 15 right-handed patients with vascular foci in the right cerebral hemisphere.

A detailed description is given of confabulations occupying the central place in the pathopsychological symptomatology.

It is suggested that the presence in the clinical picture of the syndrome of distorted own body perception associated with anosognosia and different disorders of consciousness may be a favourable background for development of the confabulation syndrome in these patients.

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19820630

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USSR

SHUBERT, F., State Central Order of Lenin Institute of Physical Culture

"Research on the Correlation Between the Estimation of Degree of Competence in a Physical Skill and Emotional Display"

Moscow, Teoriya i Praktika Fizicheskoy Kul'tury, No 2, 1972, pp 57-59

Abstract: The research sought to determine the degree of correlation between the development of physical skills by a member of a small group and the emotional reaction of the others in the group to that member. It challenges the Western "divergence theorem" (Hofstätter, 1957), which states that the two structural planes of affection and achieved skills are independent and divergent, concluding that group members with highly developed skills are not rewarded with the affection of other members. Data was compiled by the following method: The 12 members of 6 groups of children, aged 10-11 years, at a Pioneer athletic summer camp were submitted to the following sociometric interrogation at the beginning and end of their stay. The group members were asked to rank their group according to the level of skill in strength, speed, endurance, and accuracy. From this a generalized ordering of the group according to four different skills was compiled, composing the structural plane of achieved skills. The plane of affection was compiled

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USSR

SHUBERT, F., *Teoriya i Praktika Fizicheskoy Kul'tury*, No 2, 1972, pp 57-59

by asking the children with whom they would prefer to be in a group next year. The four skill planes were correlated with the affection plane by Spearman's method. The tabular data shows the coefficients obtained by this method at the beginning and end of the camp. Both tables reveal a significant correlation between affection and degree of developed skill. Expression of sympathy for a group member is a variable dependence on that member's skill. Generally, a high degree of physical achievement commands affection and respect. This convergence of the two planes indicates a high degree of internalization of group norms and the merging of the two planes into a single value structure. The extent of convergence may be used as an indicator of the group's development as a team. In athletics this convergence means the group member has a high incentive to develop team skills, thus increasing overall levels of team achievement. The esteem won by an athlete's physical achievements increases self-confidence and pride in group membership. Also, the athlete serves as a model for imitation. The correlation between skill and emotional reward also diminishes intragroup conflicts and increases the overall reliability and vitality of the team. The results of the data do

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SHUBERT, F. , Teoriya i Praktika Fizicheskoy Kul'tury, No 2, 1972, pp 57-59

not affirm the "divergence theorem" for small groups. The convergence shown has influence both on a group member's physical achievements and his intra-group relations.

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Pathology

USSR

UDC 616.988.7-092.9-07:616.453.-008.6-07

GONCHAROV, N. P., VERBERGER, K., SHUBERT, K., and SHEVTSOVA, Z. V., Institute of Experimental Pathology and Therapy, Academy of Sciences USSR, and Institut e of Microbiology and Experimental Therapy, German Academy of Sciences (Jena)

"Secretory Function of the Adrenal Cortex in Macaques With Monkey Hemorrhagic Fever"

Moscow, Patologicheskaya Fiziologiya i Eksperimental'naya Terapiya, No 2, 1971, pp 31-37

Abstract: Forty compounds were isolated from the adrenal blood of healthy and sick rhesus monkeys. Thirteen of these were steroid hormones identified by infrared spectrography: hydrocortisone, aldosterone, corticosterone, 17-alpha-hydroxyprogesterone, 17-hydroxy-11-desoxycorticosterone, steroid-lactone (11 β , 18-dihydroxy-4-androsten-3-one-17 β -acids lactone 20 \Rightarrow 18), dehydroepiandrosterone, 7-ketodehydroepiandrosterone, androstenedione, 11 β -hydroxyandrostenedione, adrenosterone, pregnenolone, and progesterone. Hemorrhagic fever induced by inoculating the animals with the Sukhumi-64 strain of the virus sharply impaired the secretory function of the adrenal cortex. The degree of impairment was determined by the severity of the infection. The secretion of aldosterone and corticosterone increased in all stages of the

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GONCHAROV, N. P., et al., Patologicheskaya Fiziologiya i Eksperimental'naya Terapiya, No 2, 1971, pp 31-37

disease while that of hydrocortisone decreased sharply. The glucocorticoids are known to play a major role in the nonspecific defensive reactions of the body. Hence, inhibition of the biosynthesis of the most active glucocorticoid, hydrocortisone, in the severely ill monkeys helped to lower their general resistance, thus aggravating the course of the disease.

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USSR

UDC 621.396.6--181.5 (088.8)

BARANOV, A.I., BATEKHAURI, V.D., VOSECHOYNIKOV, I.I., GAVELLOV, R.A., GALKATIN, V.P., GOLUBTSOV, M.S., ZAMIKHOVSKIY, M.B., ZALIPSKIY, A.I., ELOTIN, V.A., KAZATSKER, L.I., LAGUTIN, G.V., LARIONOV, YU. S., PRIBRAZHENSKIY, S.P., KALKIN, D.L., RAMENSKIY, I.V., SIMONOVA, I.S., TIKHOMIROV, B.G., FISHEL', I.SH., SHUBERT, M.M.

"Device For Deposition Of Multilayer Coverings In A Vacuum"

USSR Author's Certificate No 279291, filed 16 June 68, published 30 Nov 70 (from RZh--Radiotekhnika, No 9, Sep 1971, Abstract No 9V272P)

Translation: A device proposed for deposition of multilayer coverings in a vacuum is fulfilled in the form of a number of successively mounted independent operating chambers supplied with evaporators, heaters, and an exhaust system. The device contains a mechanism for transporting substrates, a mechanism for loading and unloading, and a drive mechanism. With the object of increasing the reliability of the device and improving the quality and reproducibility of the coverings deposited, outside of the area of the arrangement of operating chambers and parallel to it a supplementary vacuum chamber is installed, which serves for the deposition in it of the transporting mechanism, and which communicates with each of the operating chambers by means of vacuum-overlapping transfer windows located on the side wall

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BARANOV, A. I., et al., USSR Author's Certificate No 279291, filed 16 June 68, published 30 Nov 70 (from RZh--Radiotekhnika, No 9, Sep 1971, Abstract No 9V272P)

of the supplementary chamber at places for connection to it of the operating chambers. Each of the operating chambers or a group of them is provided with an individual system of high-vacuum pumping.

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Radiobiology

USSR

UDC 612.017.1.014.46:615.849.2

SHUBIK, V. M., NEVSTRUYEVA, M. A., LIVSHITS, R. YE., and KOLOIVIN, V. A.,
Leningrad Scientific Research Institute of Radiation Hygiene

"Effect of Nuclear Fission Products on Immunological Reactions"

Moscow, Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, No 9, 1972,
pp 12-17

Abstract: Rats were injected once with an individed mixture of rare earth (La-140, Ce-141, Ce-144, Pr-143, Y-91, Nd-147) and alkali earth (Sr-89, Ba-140) radionuclides to determine the effect of these nuclear fission products on nonspecific (Ioffe's test, bactericidal action, lysozyme, complement serving as criteria) and specific (antibody response to inoculation of *Proteus vulgaris* and sheep erythrocytes) immunity. Nonspecific reactions and antibody formation were depressed and a large quantity of autoantibodies to liver and kidney tissues were produced. These changes were phaselike: periods of decrease alternated with phases of normalization and even stimulation. There was a distinct relationship between most of the immunological parameters and the dose of radioisotopes used. The various factors differed in sensitivity to internal irradiation.

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USSR

UDC 577.391:576.809.7

SHURIK, V. M., KOLOTVIN, V. A., LIVSHITS, R. Ye., and BRONSHTEYN, I. E.,
Leningrad Scientific Research Institute of Radiation Hygiene, Ministry of
Health RSFSR, Leningrad

"Comparative Study of the Dynamics of Changes in the Indexes of Non-Specific
Immunity Under the Effect of Long-Wave and Short-Wave X-Rays"

Moscow, Radiobiologiya, Vol 11, No 4, Jul/Aug 71, pp 540-544

Abstract: Nonspecific immunological reactivity was studied upon irradiation of rats with long-wave and short-wave x-rays with an effective energy of 14 and 75 keV, respectively. The immunological reactivity was determined on the basis of the area of postinjection infiltration 24 hrs after intracutaneous injection to the animals of 0.1 ml of anti-rat serum, the bactericidal activity of the blood serum towards *E. coli*, the lysozyme titer of the blood serum with respect to *Micrococcus lysodeicticus*, and the complement titer of the blood serum as indicated by the hemolysis of ram erythrocytes. On exposure of the animals to equal doses of long-wave and short-wave radiation, the nonspecific immunity was suppressed to a greater extent by the action of short-wave than long-wave radiation. This was due to the fact that, as shown by calculations for the total body, the skin,
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SHUBIK, V. M., et al., Radiobiologiya, Vol 11, No 4, Jul/Aug 71, pp 540-544

and the spleen, the average absorbed doses were higher at equal exposure doses for the high-energy short-wave radiation than the low-energy long-wave radiation.

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1/2 018 UNCLASSIFIED PROCESSING DATE--09OCT70
TITLE--THE EFFECT OF INCORPORATED RADIOISOTOPES ON INFECTIOUS PROCESSES
ADN IMMUNOLOGICAL REACTIONS -U-
AUTHOR--SHUBIK, V.M.
COUNTRY OF INFO--USSR S
SOURCE--ZHURNAL MIKROBIOLOGII, EPIDEMIOLOGII I IMMUNOBIOLOGII, 1970, NR 5,
PP 52-60
DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--RADIOISOTOPE, IMMUNOLOGY, INFECTIOUS DISEASE, BIOPHYSICS,
MEDICAL NUCLEAR APPLICATION, ALLERGIC DISEASE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRA--1994/1130

STEP NO--UR/0016/70/000/005/0052/0060

CIRC ACCESSION NO--AP0115149

UNCLASSIFIED

2/2 018

UNCLASSIFIED

PROCESSING DATE--09OCT70

CIRC ACCESSION NO--AP0115149

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE AUTHOR ANALYZES 127 WORKS (OF 109 SOVIET AND 18 FOREIGN AUTHORS) DEVOTED TO THE PROBLEM OF THE EFFECT OF INCORPORATED RADIOISOTOPES ON INFECTIOUS PROCESSES AND VARIOUS IMMUNOLOGICAL REACTIONS CHARACTERIZING THE STATE OF NATURAL AND ACTIVELY ACQUIRED IMMUNITY, AND ALSO THE ALLERGIC REACTIVITY. AS SHOWN, CHANGES OF CERTAIN IMMUNOLOGICAL INDICES DEPENDED ON BIOPHYSICAL PROPERTIES OF RADIONUCLEIDS USED IN THE EXPERIMENTS. THE NECESSITY OF FURTHER STUDIES OF THE COMPLEX OF IMMUNOLOGICAL REACTIONS DURING THE ACTION OF VARIOUS INCORPORATED RADIOISOTOPES IS EMPHASIZED. FACILITY: LENINGRAD N I INSTITUT RADIATIONNOY GIGIYENY.

UNCLASSIFIED

USSR

UDC 535.393

GOLOVASHKIN, A. I., MOTULEWICH, G. P., and ~~SHUBIN, A. A.~~

"Optical Properties and Electron Characteristics of Metals"

Alma-Ata, Izvestiya Akademii Nauk Kazakhskoy SSR, Seriya Fiziko-Matematicheskaya, No 4, Jul-Aug 71, pp.35-41

Abstract: This article was presented at the Second Republic Conference on Questions of General and Applied Physics held in October 1969 at Alma-Ata. The authors find that the electron characteristics obtained by the optical method, mainly the Fourier components of the pseudopotential, define both the zone structure and other properties that depend on the electron interaction. They are thus able to use the values obtained in this article for interpretation of other data. They compare the characteristics revealed by the optical method and those determined using the van Alphen-de Haas effect, the anomalous skin effect, absorption of ultrasound in a magnetic field, and study of the intensity of x-ray diffraction maxima as a function of temperature and find a good agreement. On the whole the experiment confirms the metallo-optical phenomena developed in the article and indicates great potentiality for metallo-optics that will permit obtaining significant information on the electron properties of metals. The article contains 2 figures, 1 table, and a bibliography of 5 entries.

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1/2 041
UNCLASSIFIED
TITLE--OPTICAL PROPERTIES OF SUPERCONDUCTING NIOBIUM AND TITANIUM ALLOYS
-U-
PROCESSING DATE--18SEP70
AUTHOR--(05)--LEKSINA, I.YE., MOTULEVICH, G.P., SHUBIN, A.A., BARANDV, I.A.,
SYTNIKOV, V.A.
COUNTRY OF INFO--USSR
SOURCE--FIZ. METAL. METALLOVED. 1970, 29(1), 97-107
DATE PUBLISHED-----70
SUBJECT AREAS--MATERIALS
TOPIC TAGS--SUPERCONDUCTING ALLOY, NIOBIUM ALLOY, TITANIUM ALLOY, PHOTON,
OPTIC CONSTANT, LIQUID NITROGEN, SUPERCONDUCTIVITY
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1984/0189
STEP NO--UR/0126/70/029/001/0097/0107
CIRC ACCESSION NO--AP0054985
UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0054985

ABSTRACT/EXTRACT--(U) GP-O- ABSTRACT. OPTICAL CONSTS. N AND X WERE MEASURE AT 1-10 MU FOR NB-TI ALLOY BETA-SOLNS., CONTG. 25, 40, 52, 70, AND 85 AT. PERCENT NB. STATIC COND., RESISTANCE AT ROOM AND LIQ. N TEMP., RESIDUAL RESISTANCE CRIT. TEMP. (T SUBC) FOR TRANSITION TO THE SUPERCONDUCTING STATE, AND D. WERE DETD. ALSO FOR THESE SOLNS. THE DATA WERE USED TO CALC. BASIC CHARACTERISTICS OF COND. ELECTRONS OF THE ALLOYS. THE STUDY REVEALS THAT, IN NB, S AND D SHELL ELECTRONS INTERACT FORMING A UNIFORM COND. BAND. THIS IS MORE PRONOUNCED IN ALLOYS HAVING A HIGHER VALUE OF EFFECTIVE FREQUENCIES (V) OF ELECTRON COLLISIONS THAN THAT OF NB METAL. A CORRELATION BETWEEN N (CONC. OF COND. ELECTRONS.) AND T SUBC AND V OF ELECTRON COLLISION WITH PHOTONS IS GIVEN.

UNCLASSIFIED

USSR

UDC 669.293:537.312.62

LEKSINA, I. YE., MOTULEVICH, G. P., SHUMIN, A. A., BARANOV, I. A., SYTNIKOV, V. A.,
and SEMULEVICH, R. S., Physics Institute imeni P. N. Lebedev

"Optical Properties of Superconducting Nb-Ti Alloys"

Sverdlovsk, Akademiya Nauk SSSR, Fizika Metallov i Metallovedeniye, Vol 29,
No 1, Jan 70, pp 97-107

Abstract: An experimental investigation of the optical properties of superconducting Nb-Ti alloys is reported. The samples were prepared from electron-beam-melted niobium (99.9) and titanium iodide; the experimental and measuring techniques are described. Optical constants n and k (M) of electrolytically polished cubic Nb-Ti beta-solutions with atomic Nb concentrations of 25, 40, 52, 70, and 85 were measured in the 1-10 micron spectral range at room temperature. The same samples were used for determining the density ρ , the static conductance σ_{st} , the resistance R at room and nitrogen temperatures, the residual resistance R_{st} , and the transition temperature T_c into the superconducting state. The values of basic characteristics of conduction electrons of the tested alloys (electron concentration N , mean velocity v_F on the Fermi level, total area of Fermi level S_F , effective collision frequency ν , collision

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USSR

LEKSIINA, I. YE., et al, Akademiya Nauk SSSR, Fizika Metallov i Metallovedeniye, Vol 29, No 1, Jan 70, pp 97-107

frequency of electrons with phonons ν_{ep} and with impurities ν_{ei}) were determined on the basis of experimental data. The possibility is shown of obtaining N , ν , ν_{ep} and others from n and μ with the aid of normal skin-effect formulas, taking into account the nature of the relationship between the electron characteristics and the optical properties of alloys. An analysis of the results shows that: 1) the values of N are close to those of pure niobium, and only in 25% atomic Nb are these values somewhat smaller; 2) the effective collision frequency of electrons ν in alloys is $\sim 10^{15} \text{sec}^{-1}$, while the collision frequency of electrons with phonons ν_{ep} in alloys is close to that of pure niobium. Thus, the large ν values are related to large ν_{ei} values, which in alloys are two orders higher than ν_{ei} of pure niobium; and 3) an anomalous dispersion $\epsilon(\omega)$ was observed in the long-wave region in all alloys. This indicates the existence of interphase transitions with the resonance frequency in the range of $\hbar\omega = 0.15 - 0.20 \text{ eV}$ for 25-70 at% Nb alloy and in the range of $\hbar\omega < 0.15 \text{ eV}$ for 35 at% Nb alloy. The possibility of the correct determination of electron characteristics of Nb-Ti alloys from measurements of their optical constants is pointed out. The dependence of the transition temperature T_s on N and ν_{ep} is presented in graphs. Orig. art. has: 7 figures, 10 formulas, and 3 tables.

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USSR

MOROZOV, A. I., SHUBIN, A. P. (Moscow)

"Concerning the Theory of Two-Dimensional Flows of Well Conducting Plasma in a Channel"

Moscow, Zhurnal Prikladnoy Mekhaniki i Tekhnicheskoy Fiziki, No 4, July-August 1970, pp 9-19

Abstract: A number of theoretical and experimental endeavors have been devoted to stationary coaxial plasma accelerators with their own magnetic field (i.e., a field created exclusively by the electric current passing through the accelerator); nevertheless, proper understanding of the processes taking place in systems such as these is as yet lacking. This is explained not only by the diversity of the processes but also by their complexity and interdependence. In the present article simplified equations have been obtained which describe slowly changing two-dimensional flows of well conducting, quasi-neutral, nonviscous plasma in a channel. Detailed attention is devoted to a case that is of practical interest: namely, flow in a channel with solid metal, ideally conducting walls which serve as electrodes. 4 figures, 14 bibliographic entries.

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USSR

UDC 621.357.1:621.794.48

TREGUBOVA, M. A., AKSENOV, B. I., and SHUBIN, A. S.

"Study and Comparison of Different Systems of Electroion-Exchange Regeneration Process of Spent Hydrochloric Iron-Containing Etching Solutions"

Sverdlovsk, Sb. Okhrana prirod. vod Urala (Collection of Works: Protection of Natural Ural Waters), No 5, 1972, pp 83-86 (from Referativnyy Zhurnal -- Khimiya, Svodnyy Tom, No 23(II), 1972, Abstract No 231204 by G. I. Volkov)

Translation: The regeneration process of etching solutions was studied in cells divided by (a) two cation-exchanging diaphragms, (b) two cation-exchanging diaphragms with flowing H_2SO_4 in the anode and central chambers, (c) two cation-exchanging diaphragms with flowing H_2SO_4 in the anode chamber, with feeding the initial solution into the central chamber. The latter variant produced the best results with respect to the iron extraction from the solution.

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USSR

UDC 616.981.714-036.2:595.42-167 (576.6)

SHUBIN, F. N., NATSKIY, K. V., and SOMOV, G. P., Vladivostok Institute of Epidemiology and Microbiology

"Vectors of Tsutsugamushi Fever in the Far East"

Moscow, Zhurnal Mikrobiologii, Epidemiologii i Immunologii, No 9, Sep 70, pp 112-115

Abstract: Trombiculid mites collected from rodents in natural foci of tsutsugamushi fever on Shikotan Island and in the Khasanskiy Rayon (Primorskiy Kray) were studied to determine their feeding habits on man and calves. A natural carrier state of Rickettsia tsutsugamushi was identified in D. pomeranzevi on Shikotan Island, and the ability to transmit the rickettsia to man was demonstrated. The natural rickettsia carrier state in N. mitamurai and N. japonica, their capacity to feed on man, and the coincidence between the population of these species and the incidence of tsutsugamushi fever led to the conclusion that these species are vectors of this infection in the Southern Primorskiy Kray. Larvae of the latter two species of mites and of L. pavlovsky feed on cattle.

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USSR

UDC: 511.3.616.981.714(571.6)

SOMOV, G. P., SHUBIN, F. N., SHAPIRO, M. I., COPACHEVNO, I. M., NATSKIY, K. V.

"Further Study of the Zone of Tsutsugamushi Fever in the Far East"

V sb. Materialy XV Vses. S'ezda Epidemiologov, Mikrobiologov i infektzionistov, Tezisy dokl. Ch. I. (Proceeding of the 15th All Union Conference of Epidemiologists, Microbiologists and Specialists in Infectious Diseases, Report Theses, Part I--collection of works) Moscow, 1970, pp 110-111 (from RZh-Meditsinskaya geografiya, No 1, Jan 71, Abstract No 1.36.110, by V. Maslovskaya)

Translation: Patients and infected material yielded a total of 22 rickettsial strains. It was established that the strains belonged to the tsutsu-gamushi rickettsial group and differed from type strains only in their virulence. Ten of the 13 strains from Lake Shikotan, and 2 of the 3 from Sakhalin, were highly pathogenic. All 8 strains isolated from rodents and ticks in the northwest raions of Primorskiy Kray were of low pathogenicity. On analysis of this data and previous research, the geographic plan shows that, from south to north, and from the oceanic islands to the continent, there is a decrease in the incidence of rickettsial strains from rodents and ticks, and a weakening of pathogenicity.

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USSR

SOMOV, G. P., et al., V sb. Materialy XV Vses. S'ezda Epidemiologov, Mikrobiologov i infektionistov. Tezisy dokl. Ch. I. (Proceeding of the 15th All Union Conference of Epidemiologists, Microbiologists and Specialists in Infectious Diseases, Report These, Part I--collection of works) Moscow, 1970, pp 110-111 (from RZh-Meditsinskaya geografiya, No 1, Jan 71, Abstract No 1.36.110, by V. Maslovskaya)

The continental zone covers the whole southwestern part of the Primorskiy Kray, right up to Khabarovskiy Kray (Bikinskiy rayon). In the northwestern region of the Pacific Ocean, the tsutsuganushi zone includes south Sakhalin, the south Kuril'se Islands, and apparently the very southeastern part of the Kamchatka peninsula. The natural foci in the Soviet Far East are part of the general zone of this infection, including parts of Oceania, Australia, and South and Southeast Asia, all adjacent to the basins of the Pacific and Indian Oceans.

2/2

USSR

UDC 616.928.8-022.39:636.2]-036.21-078.7

SOMOV, G. P., SHUBIN, F. N., KIR'YANOV, Ye. A., and MAMONTOVA, R. M., Vladivostok
Institute of Epidemiology and Microbiology, and Primorskiy Kray Veterinary-
Bacteriological Laboratory

"Serological Examination of Cattle as a Method for Detecting Natural Foci of
Tsutsugamushi Fever"

Moscow, Zhurnal Mikrobiologii, Epidemiologii, i Immunobiologii, No 2, 1973,
pp 63-66

Abstract: Blood serum of 586 head of cattle from southern Primorskiy Kray was
tested for the presence of Rickettsia tsutsugamushi antigen to determine the
usefulness of serological data as indexes describing natural tsutsugamushi fever
foci, and calves were subjected to various experiments to identify their role
in natural circulation of the pathogen. Antibody production dynamics of cattle
in the spring-fall period coincided with those of healthy humans residing in
the same areas, thus indicating that serological data are valid for determining
the boundaries of natural foci. In the first experiment calves were infected
subcutaneously and intravenously with R. tsutsugamushi. While intravenous
injection did not cause rickettsemia and lymphadenites to appear, with sub-
cutaneous injection infiltrates, lymphadenites, and rickettsemia arose within
the 1st 10 days, for the most part localized about the area of injection.

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USSR

SOMOV, G. P., et al., Zhurnal Mikrobiologii, Epidemiologii, i Immunobiologii, No 2, 1973, pp 63-66

Rickettsia lasted 7-10 days and arose earlier in local lymph nodes than at those located opposite the point of injection. Responses were even more rapid when the pathogen was injected directly into lymph nodes. These results suggest that in nature the pathogen undergoes initial reproduction in the skin and in lymph nodes close to the point of infection. In all cases specific complement-fixing antibodies were detected by the 7th day, maximized on the 14th, and were practically absent after 2 months. In the next experiment larvae of Trombiculae ticks were allowed to feed on calves to determine whether or not ticks might transmit the disease to cattle. L. pavlovskyi, N. japonica, and N. mitamurai larvae did manage to attach and feed. Since these ticks have been shown to be natural carriers of the disease, it is most probable that these species do transmit the disease to cattle. Whether or not uninfected larvae can become infected by feeding on infected cattle remains to be studied.

2/2

USSR

UDC 581.5

SHUBIN, I. G.; BEKENOV, A.; Institute of Zoology, Academy of Sciences Kazakh SSR

"Ecological Features of *Meriones Tamaricinus* (Pall.) Gerbils in the Zaysan Hollow"

Moscow, Ekologiya, No 4, 1971, pp 97-98

Abstract: Although studies on *Meriones tamaricinus* had been conducted in western Kazakhstan, the first field work in the Zaysan hollow on this agricultural pest and disease-bearing rodent was undertaken for our study of 253 animals in 1965, 1967, and 1968. After penetrating into the Zaysan hollow from northeast China, the rodent inhabits the brush and thickets of river bottomland and often settles in loam soil and in the sandy soil at the mouth of the Chernyy Irtys River.

Data is cited on weight of gerbils (ranging from 149.2 to 131.9 for males), dimensions, habitat, protective coloration, their predominantly vegetarian feeding habits, and reproductive patterns. In western Kazakhstan the rodent has a prolonged

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USSR

SHUBIN, I. G., et al, Ekologiya, No 4, 1971, pp 97-98

reproductive season from April through August-September, so that 30% of the new generation females reach sexual maturity during the reproductive season, while in the Zayson hollow maturation occurs only after hibernation. The slower sexual maturation of the Zayson hollow females is compensated for by their slightly larger brood size: 5.5 offspring in the first brood and 5.3 and 5.2 in the second brood, compared with 4.5 and 4.9 for females in western Kazakhstan. Sexual distribution figures generally indicate a male predominance, with the ratio ranging as wide as 26 (74.3%) males to 9 (25.7%) females.

In 1968 severe winter conditions, alternating deep cold and thaws, caused a sharp drop in the total population.

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- 28 -

USSR

UDC 621.317.3:621.3.084 (088.8)

YEGOROV, G.P., KALENIN, A.N., LUK'YANENKO, A.I., MESTECHKIN, YA. I., SHUBIN, L.V.

"Device For Investigation Of Electron Streams"

USSR Author's Certificate No 263753, filed 22 Apr 66, published 24 June 70 (from
RZh--Elektronika i yeye primeneniye, No 2, February 1971, Abstract No 2A127P)

Translation: The device proposed for investigation of an electron stream contains a vacuum chamber with an electron gun, and differs from known devices of this type by the fact that the vacuum chamber is combined with additional vacuum chambers. This assures identical vacuum conditions in the process of measurement of one and the same electron stream by various measuring elements. The electron gun can turn around the axis of the vacuum chambers for successive settings as compared to the respective additional vacuum chambers, and it can also move along the axis of the additional vacuum chambers with the aid of a special device. 2 ill. G.B.

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USSR

SHUBIN, M. A.

UDC: 513.88

"Spectrum Discreteness Conditions for Some Operators"

Moscow, Matematicheskiye Zametki, vol 11, No 3, 1972, pp 233-240

Abstract: The purpose of this paper is to obtain some necessary and sufficient conditions for the discreteness of operator spectra in terms of the symbols for the operators. To obtain some of the required criteria, the author uses the lemmas of V. P. Maslov and G. Veyl': O kriterii diskretnosti spektra uravneniya Shturma-Liuvilliya s operatornym koefitsiyentom (Criterion of Discreteness of the Sturm-Liouville Equation Spectrum With an Operational Coefficient), Punkts. analiz i yego prilozheniya, 2, No 2, 1968, pp 63-67; Glazman, I. M., Pryamyye metody kachestvennogo spektral'nogo analiza singulyarnykh differentsial'nykh operatorov (Direct Methods for Qualitative Spectral Analysis of Singular Differential Operators), Theorem 8, Moscow, 1963. The first is used for obtaining the criteria, and the second for proof of the sufficient criteria. The author of the present paper is affiliated with the M. V. Lomonosov Moscow State University.

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USSR

UDC 517.9

SHUBIN, M. A., Moscow

"Factorization of Matrices Dependent on a Parameter and Elliptic Equations in a Half-Space"

Moscow, Matematicheskii Sbornik, Vol 85, No 1, May 71, pp 65-84

Abstract: In the theory of elliptic boundary-value problems the need arises for factorization of the matrices $A(t, \xi)$ which depend on some parameter t , in addition to the variable $\xi \in \Gamma$. This problem has been considered by various authors, but only in cases where the particular indices $A(t, \xi)$ do not depend on t , whereas the latter cannot be guaranteed even by the holomorphic dependence of $A(t, \xi)$ on t . The present article shows that in the case of particular indices variable with respect to t triangular rather than canonical factorization should be used: i.e., the representation

$$A(\xi) = A_+(\xi) D(\xi) A_-(\xi),$$

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USSR

SHUBIN, M. A., Matematicheskii Sbornik, Vol 85, No 1, May 71, pp 65-84

in which all factors depend on t and $D(t, \xi)$ is a triangular matrix with the elements ξ^{ki} on the principal diagonal. An auxiliary theorem is obtained showing that the ring C^+ of functions analytic in a circle and continuous up to the boundary, as well as some rings close to it, possess the PF property known in algebraic geometry. This property is used to prove the principal theorem: viz., that any matrix-function dependent on a parameter on a circle permits triangular factorization continuous with respect to the parameter. The nonuniqueness of triangular factorization is studied, and a simplification of the triangular matrix-function taking part in triangular factorization. A supplement to the article shows that even a weak corollary of the triangular factorization theorem makes it possible to supplement the normal solvability theorems of M. I. VISHIK and G. I. ESKIN with an algorithm for the solution of the problem in a half-space for an equation

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USSR

SHUBIN, M. A., Matematicheskiy Sbornik, Vol 85, No 1, May 71, pp 65-84
with a constant symbol. This was previously impossible because there was no
good theorem on factorization with a parameter.

The author thanks M. I. VISHIK for his interest in the work.

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USSR

UDC: 621.783

SHUBIN, R. P., PRIKHOD'KO, V. S.

"Satisfaction of Technological Requirements for Modern Heating Furnace Designs"

Metallovedeniye i Termicheskaya Obrabotka Metallov, No 9, 1973, pp 34-36.

Abstract: Requirements placed on heating furnaces include: maintenance of the required temperature mode with minimum deviations; sealing of the heating space in order to allow controlled atmospheres to be used; capability of direct quenching of parts with regulated temperature or cooling in a protective medium; and maximum automation of the control of all elements of the technological process. Designs of modern furnaces meeting these requirements, primarily manufactured in the USA, Japan, Britain and West Germany, are very briefly described.

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USSR

UDC: 532.526

YEFIMTSOV, B. M., SHUBIN, S. Ye.

"Results of Measurement of Mutual Spectra of Wall Pressure Pulsations in a Turbulent Boundary Layer"

Uch. Zap. Tsentr. Aero-gidrodinam. In-ta [Scientific Writings of Central Institute of Aerodynamics and Hydrodynamics], 1972, 3, No 4, pp 126-129
(Translated from Referativnyy Zhurnal Mekhanika, No 12, 1972, Abstract No 12B788, from the resume)

Translation: Results are presented from measurement of the real and imaginary parts of longitudinal and transverse mutual spectra, as well as the phase velocity for the field of near-wall pressure pulsations of a turbulent boundary layer on the surface of an aircraft. Measurements were performed over a smooth surface with zero mean pressure gradient in the speed range $M=0.35-1.5$, $R=0.5 \cdot 10^8 - 1.9 \cdot 10^8$. Universal dependences are produced for longitudinal and transverse mutual spectra. It is established that the ratio of phase velocity to velocity on the external boundary of the boundary layer depends little on flow parameters. Twenty one biblio. refs.

1/1

USSR

UDC [537.226+537.311.33]:[537+535]

VAVILOV, V. S., PLOTNIKOV, A. F., SOKOLOVA, A. A., and SHUBIN, V. E.

"Electron Injection From Semiconductor and Metal Into Dielectric Due to Illumination of Au-InSb Oxide-InSb Structures"

Kratkiye soobshch. po fiz. (Brief Communications on Physics), 1971, No 4, pp 40-47 (from PZh-Fizika, No 10, Oct 71, Abstract No 10YE791 by V. B. S.)

Translation: An investigation was made of illumination-induced electron injection from a semiconductor (and metal) into a dielectric, as well as intrinsic and extrinsic photoconductivity of the dielectric in Au-InSb oxide-InSb structures. The authors consider the processes of charge exchange of traps localized in the dielectric under the action of the illumination of MDP [metal-dielectric-semiconductor (?)] structures by IR and visible radiation.

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1/2 020 UNCLASSIFIED PROCESSING DATE--27NOV70
TITLE--RELATIVE MIGRATION TENDENCIES OF P SUBSTITUTED PHENYL GROUPS IN
CARBONIUM ION DOUBLY DEGENERATE REARRANGEMENTS -U-
AUTHOR--(05)-SHUBIN, V.G., KORCHAGINA, D.V., BORDOKIN, G.I., DERENDYAEV,
B.G., KOPTYUG, V.A.
COUNTRY OF INFO--USSR
SOURCE--J. CHEM. SOC. D 1970, (11), 696-7
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--BENZENE DERIVATIVE, NUCLEAR MAGNETIC RESONANCE, UV SPECTRUM,
FLUORINATED ORGANIC COMPOUND, CHLORINATED ORGANIC COMPOUND
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3007/0989 STEP NO--UK/0000/70/000/011/0696/0697
CIRC ACCESSION NO--AP0136419
UNCLASSIFIED

2/2 020

CIRC ACCESSION NO--AP0136419
ABSTRACT/EXTRACT--(U) GP-0-

UNCLASSIFIED

PROCESSING DATE--27NOV70

ABSTRACT. THE ORDER OF THE MIGRATION OF
P, X, PHENYL GROUPS IN THE DOUBLY DEGENERATE REARRANGEMENT OF STABLE (I)
IONS, FORMED BY PROTONATION OF NEUTRAL PRECURSORS, IS X EQUALS ME LARGER
THAN F SIMILAR TO H LARGER THAN CL LARGER THAN CF PRIME3. THE NMR AND
UV SPECTRA OF I ARE DISCUSSED. FACILITY: INST. ORG. CHEM.,
NOVOSIBIRSK, USSR.

UNCLASSIFIED

USSR

UDC 621.791.052:620.192.46:669.14

FEDOROV, V. G., Candidate of Technical Sciences, MAKAROV, E. L., Candidate of Technical Sciences, BELOV, YU. M., Candidate of Technical Sciences, ZASETSKIY, YU. A., Engineer, and SHUBIN, V. I. Engineer

"Conditions for Crack Development in Welding EP56 Steel"

Moscow, Svarochnoye Proizvodstvo, No 1(471), Jan 74, pp 31-32

Abstract: The development of cold cracks was investigated in joints of EP56 steel welded with EP56 electrodes after 1-14 hr of holding under different pressures. A definite relation was found between the H-content in the metal of the joint and the resistance of welded joints to the development of cracks; an index was determined which characterizes the disposition of welded EP56 steel joints to crack development at manual electric arc welding. The critical H-content in the metal of the welded joint (less than 10cm³/100g) was established which excludes the development of cold cracks in welded EP56 steel joints, according to tests by the LTP-2 method. Joint hardness was HV 441 when welded with steam electrodes, and HV 430 when welded with electrodes annealed at maximum temperature, whereby the hardness of the base metal was HV 316. Five figures, three bibliographic references.

USSR

UDC 539.16:628.315

DOLIN, P. I., Doctor of Chemical Sciences; SHUBIN, V. I., and BRUSENTSEVA, S. A., Candidate of Chemical Sciences; and PRIBUSH, A. G., Institute of Electrochemistry AN SSSR (Academy of Sciences, USSR)

"Radiation Purification of Polluted Water From Organic Contaminants"

Moscow, Vodosnabzheniye i Sanitarnaya Tekhnika, 8, 1973, pp 10-14

Abstract: A number of factors must be considered during an evaluation of the radiation process for water purification: the concentration and nature of the contaminants, the desired resultant purity, the nature and concentration of the products of radiation-induced oxidation, and the volume of water to be purified. The effects of dosages and temperatures, various pathways, and possible reactive species such as OH , H , H_2O^+ , and HO_2 are considered. Yields are given for various products under varying conditions. Radiation purification may be an economic way to purify dilute (less than 10^{-3} M) solutions of highly toxic compounds. The optimum conditions for the removal of organic material from aqueous solutions by the chain mechanism were determined. Recommendations were made for future studies such as the relationship of oxidation to polymerization and polycondensation; radiation treatment followed by biological purification and others.

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1/2 016
TITLE--RADIOLYSIS OF AQUEOUS SOLUTIONS OF SOME ORGANIC SUBSTANCES -U-
AUTHOR--(04)-BRUSENTSEVA, S.A., DOLIN, P.I., SHUBIN, V.N., PRIBUSH, A.G.
COUNTRY OF INFO--USSR
SOURCE--VYS. ENERG. 1970, 4(1), 88-9
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY, NUCLEAR SCIENCE AND TECHNOLOGY
TOPIC TAGS--RADIOLYSIS, AQUEOUS SOLUTION, PHENOL, PICRIC ACID, SULFONE,
GAMMA RADIATION
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1987/1114
CIRC ACCESSION NO--AP0104512
STEP NO--UR/0456/70/004/001/0038/0089
UNCLASSIFIED

2/2 016
CIRC ACCESSION NO--AP0104512 UNCLASSIFIED PROCESSING DATE--18SEP70
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. PHENOL (I), PICRIC ACID (III),
DECANESULFONATE (III), AND P-O SUB2 NC SUB6 H SUB4 OP(S)(OET)SUB2 (IV)
IN AQ. SOLNS. SATD. WITH AIR WERE IRRADIATED BY PRIME60 CO (3 TIMES 10
PRIME15 EV CM PRIME NEGATIVE3 SEC PRIME NEGATIVE1) AT ROOM TEMP. AND THE
DECOMP. YIELDS WERE MEASURED (COMP. ITS CONC. TIMES 10 PRIME5 M, AND
MINUS G VALUES, GIVEN): I, 16, 3.5 PLUS OR MINUS 0.3; II, 4.3, 0.65 PLUS
OR MINUS 0.1; III, 40, 2.3 PLUS OR MINUS 0.3; IV, 20, 1.0 PLUS OR MINUS
0.1. RADIOLYSES OF AQ. 4 TIMES 10 PRIME NEGATIVE4 M III IN THE PRESENCE
OF AIR, N SUB2, N SUB2 O, OR H SUB2 O SUB2 WERE ALSO STUDIED AND PLOTS
OF YIELD VS. DOSE ARE PRESENTED.

UNCLASSIFIED

1/2 023
UNCLASSIFIED
TITLE--HETEROGENEOUS DISTRIBUTION OF INTERNAL STRESSES AND THE BRITTLE
FRACTURE TENDENCY OF STEEL -U-
AUTHOR--SARRAK, V.I., SHUBIN, V.N., ENTIN, R.I.
PROCESSING DATE--11SEP70
COUNTRY OF INFO--USSR
SOURCE--FIZ. METAL. METALLOVED. 1970, 29(1) 143-9
DATE PUBLISHED-----70
SUBJECT AREAS--MATERIALS
TOPIC TAGS--BRITTLE FRACTURE, CHROMIUM STEEL, MANGANESE STEEL, ALLOY
DESIGNATION, LOW ALLOY STEEL, INTERNAL STRESS, IRON ALLOY, GRAIN
BOUNDARY/(U)20KHG CHROMIUM MANGANESE STEEL
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1988/0020
STEP NO--UR/0126/70/029/001/0143/0149
CIRC ACCESSION NO--AP0105119
UNCLASSIFIED

2/2 023

UNCLASSIFIED

PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0105119

ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. IN VIEW OF THE STRONG DEPENDENCE OF THE NATURE OF FRACTURE ON THE STRUCTURAL STATE OF THE METAL, THE DETN. OF THE HETEROGENEITY OF INTERNAL STRESSES FOR CONCRETE STRUCTURES CHARACTERIZED BY DIFFERENT RESISTANCE TO BRITTLE FRACTURE IS OF INTEREST. THE PRESENT INVESTIGATION OF FE AND STEEL 20KHG IN VARIOUS STRUCTURAL STATES SHOWED THAT RELAXATION TESTS ARE CAPABLE OF PROVIDING AN IDEA AS TO THE DEGREE OF LOCAL CONC. OF STRESSES DURING LOADING. THE LEVEL OF LOCAL INTERNAL STRESSES UNDER LOAD INCREASES WITH INCREASED GRAIN SIZE AND THE HETEROGENEITY OF THE STRUCTURE. THE CHANGE IN THE STATE OF THE GRAIN BOUNDARIES EXERTS NO EFFECT ON THE DEVELOPMENT OF HETEROGENEITY OF STRESSES, AND IT CAN PRODUCE AN INCREASE IN THE TENDENCY TOWARDS BRITTLE FRACTURE AS A RESULT OF DECREASED EFFECTIVE ENERGY OF THE FRACTURE SURFACE.

UNCLASSIFIED

USSR

UDC: 621.314.2

ZIMODRO, A. F., SHUBIN, V. V., BOL'SHAKOVA, L. P., POZNYAK, V. I.

"Quality Control of Ferrite Cores for Pulse Microtransformers"

Elektron. tekhnika. Nauchno-tekhn. sb. Radiokomponenty (Electronic Technology. Scientific and Technical Collection. Radio Components), 1970, vyp. 1, pp 128-133 (from RZh-Radiotekhnika, No 5, May 71, Abstract No 5V368)

Translation: The authors discuss some problems of sorting out ferrite cores for pulse microtransformers. The selected method of inspection is substantiated and experimental data are presented. Resumé.

018
UNCLASSIFIED
TITLE--DESIGN OF HEAT PREPARATION PLANTS OF HEAT AND ELECTRIC POWER PLANTS
AND BOILER HOUSES -U-
AUTHOR--(021)-SHUBIN, YE.P., LEVIN, B.I.
PROCESSING DATE--13NOV70
COUNTRY OF INFO--USSR
SOURCE--(PROYEKTIROVANIYE TEPLODODGOTOVITEL'NYKH USTANOVOK TETS I
KOTEL'NYKH) MOSCOW, ENERGIYA, 1970, 493 pp
DATE PUBLISHED-----70
SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR, ENERGY CONVERSION
(NON-PROPULSIVE)
TOPIC TAGS--HEAT SOURCE, FURNACE, ELECTRIC POWER SOURCE, ELECTRIC POWER
PLANT
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--3005/0241
CIRC ACCESSION NO--AM0132507
STEP NO--UR/0000/70/000/000/0001/0493
UNCLASSIFIED

2/2 018
CIRC ACCESSION NO--AM0132507 UNCLASSIFIED PROCESSING DATE--13NOV70
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TABLE OF CONTENTS: PREFACE 3.
MEASUREMENT UNITS IN THE BOOK 7. CHAPTER I GENERAL CHARACTERISTICS OF
CENTRALIZED HEAT SUPPLY SYSTEMS AND THERMAL NETWORKS 11. II BASIC
EQUIPMENT OF CENTRALIZED HEAT SUPPLY SOURCES AND HEAT RELEASE CIRCUITS
123. III BASIC EQUIPMENT OF HEAT PREPARATION PLANTS 198. IV BASIC
CALCULATION OF HEAT PREPARATION PLANTS 283. V LAYOUT AND EXAMPLES OF
PROJECT SOLUTIONS OF HEAT PREPARATION PLANTS 439. BIBLIOGRAPHY 490.
THE BOOK DEALS WITH BASIC PROBLEMS IN DESIGN OF HEAT PREPARATION PLANTS.
THE BOOK WAS WRITTEN FOR EMPLOYEES OF DESIGN ORGANIZATIONS WORKING ON
DESIGNS OF HEAT AND ELECTRIC POWER PLANTS, BOILER ROOMS AND THERMAL
NETWORKS. IT CAN BE USED ALSO BY STUDENTS SPECIALIZING IN HEAT POWER
ENGINEERING AND CIVIL ENGINEERING, AS WELL AS WORKERS OF HEAT AND
ELECTRIC POWER PLANTS, BOILER ROOMS AND THERMAL NETWORKS.

UNCLASSIFIED

AA 0040646

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UR 0482

1-70

Soviet Inventions Illustrated, Section I Chemical, Derwent,

242089 YEAST STRAIN *Candida tropicalis* SKP-2 was isolated from yeast obtained commercially by continuous cultivation. The novel strain does not require preliminary adaptation to hydrocarbons and was found suitable for the biosynthesis of vitamin-containing proteinaceous fodder from the naphtha hydrocarbons. The strain assimilates glucose, maltose, saccharose and galactose, and does not liquify gelatine. The nitrate nitrogen is not utilised. 29.1.68. as 1213829/28-13, SHUBINA, L.N. and GRIGOR'EVA, N.A. Protein Biosynthesis Res. Inst. (5.9.69.) Bul. 15/25.4.69. Class 6a, Int. Cl. C 12k.]

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AA0040646

AUTHORS: Shubina, L. N.; and Grigor'yeva, N. A.

Severo - Kavkazskiy Filial Vsesoyuznogo Nauchno -
Issledovatel'skogo Instituta Biosinteza Belkovykh Veshchestv

19750225

USSR

UDC 547.558.1

SHUBINA, L. V., and KRASOVSKAYA, L. I., Belorussian State University imeni
~~V. I. Lenin~~

"Stereospecificity of the Reaction of 1,3-Xylylene-Bis-Phosphonium Ylid
With Benzaldehyde"

Leningrad, Zhurnal Obshchey Khimii, Vol 42(104), No 5, May 72, pp 969-971

Abstract: The present article is a continuation of earlier studies by the same authors in which they showed that the reaction of 1,4-xylylene-bis-triphenylphosphoran with benzaldehyde, depending on the experimental conditions, led to the formation of a mixture of geometric isomers of 1,4-distyrylbenzene in various ratios.

This is a further study of stereospecificity of the reaction of bis-phosphonium ylids with aromatic aldehydes. The authors showed that the reaction of 1,3-xylylene-bis-phosphonium ylid with benzaldehyde in aprotic and nonpolar solvents is a stereospecific process leading to trans-trans-1,3-distyrylbenzene. Geometrical isomers of 1,3-distyrylbenzene were synthesized and characterized by infrared spectra.

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USSR

IVANITSKIY, A., Professor, Doctor of Medical Sciences, and SHUBINA, N., Candidate of Medical Sciences

"Physiological Two-Dimensionality of Information: Mechanisms and Consequences"

Moscow, Nauka i Zhizn', No 1, 1970, pp 97-103

Abstract: A study was made of the two ways that the brain evaluates information received by the senses, i. e., the objective analysis of stimuli. Every stimulus acting on the senses can be evaluated from two points of view: by its physical parameters and by its significance to the organism. The brain is capable of synthesizing these two qualitatively different types of information, which permits the evaluation of a separate stimulus, specimen or situation from the point of view of its objective (independent of the individual) signs and from the point of view of its subjective characteristics, i. e., its significance for a given person. Both of these components are necessary for the activity of the higher brain centers in organizing adaptational behavior. At the same time, the specific weight of each of the types of information can

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USSR

IVANITSKIY, A., et al., Moscow, Nauka i Zhizn', No 1, 1970, pp 97-103.

change, depending on the situation, the problems confronting the individual and the congenital personality traits. Change of the "qualitative composition" of the information involves a whole series of perception, thought and behavior changes. Perfection of cerebral organization is manifested in the possibility of regulating the inflow of one or the other type of information, and switching perception from one type to the other.

Attention was drawn to the fact that the well-known competition between the two types of information leads to the unique "perception paradox": the more we know about the objective characteristics of the stimulus, the less precise are its subjective characteristics.

2/2

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USSR

Mechanical Properties

UDC 669.15-194:669.14

NIKITSKAYA, V. A., PYATAKOVA, L. L., POLTAVETS, N. A.,
SHUBINA, S. A., KUZNETSOVA, L. M., VOLKOV, L. G., BARANOV, V. Ya.,
and CHEREDNIK, L. Ye., Metallurgical Plant imeni Dzerzhinskiy,
Dneprodzerzhinsk Industrial Institute imeni M. I. Arsenichev

"Improvement of Mechanical Properties of Hot-Rolled 10KhSND Steel"
Moscow, Metallurg, No 1, Jan 73, pp 16-17

Abstract: Experimental data are presented on the effects of chemical composition, method of final deoxidation, and temperature at the end of rolling on the level of mechanical properties and the amount of waste of 10KhSND steel in the hot-rolled state. The effects of C, Mn, Si, and Cr and their summary effect on the impact strength and the ultimate strength (yield) of 10KhSND steel deoxidized in the ladle with aluminum (1000 g/ton) and ferro-titanium (500 g/ton) are discussed by reference to diagrams. Best results in improving the mechanical properties and in decreasing the amount of waste were obtained by applying calciosilicate (2000 g/ton) and by reducing the rolling temperature to 900 °C at the same time. The use of calciosilicate in the final deoxidation of steel in the open-hearth shop of the Plant imeni Dzerzhinskiy decreased the amount of waste by 5-5.5 times. Two figures, one table.

1/1

USSR

UDC 547.963.3

KNORRE, D. G., ROMANOVSKAYA, S. A., and SHUBINA, T. N., Novosibirsk Institute of Organic Chemistry, Siberian Department of the Academy of Sciences USSR

"Synthesis of Biologically Active C-Terminal Gastrin Tetrapeptide in a System In Vitro. I. N'-Hydroxysuccinimide Esters of Trityl- and p-Methoxytrityl-tryptophan and Their Use to Acylate Methionyl-sRNA"

Novosibirsk, Izvestiya Sibirskogo Otdeleniya Akademii Nauk SSSR, Seriya Khimicheskikh Nauk, No 4, Vyp. 2, Mar 72, pp 123-126

Abstract: The article describes a method developed for the synthesis of previously undescribed N'-hydroxysuccinimide esters of trityl- and p-methoxytrityltryptophan from the corresponding acids and studies the ability of these esters to acylate methionyl-sRNA from E. Coli. N-Trityltryptophan and N-p-monomethoxytrityltryptophan were obtained as free acids from their diethylammonium salts by careful acidification of their aqueous-alcoholic solutions. N-Trityltryptophan is obtained at room temperature, N-monomethoxytrityltryptophan at -5° C. The synthesized N'-hydroxysuccinimide esters were used to acylate [¹⁴C]-methionyl-sRNA from E. Coli in a mixture of acetate buffer (pH 5) with dimethyl sulfoxide. The N-trityl- and N-p-monomethoxytrityltryptophanyl-methionyl-sRNA were obtained in ~80% yield.

1/1

SHUBINA, V.V.

SPK 134008
6-13

XV-5. APPLICATION OF THE METHOD OF SECONDARY ION-EM EMISSION TO STUDY THE SURFACE OF ALLOY SEMICONDUCTOR COMPOUNDS

Article by V. V. Shubina, A. G. Kovalev, Yu. A. Alimov, V. F. Lebedev, S. S. Stetsko, and V. V. Shubina, *Izv. Akad. Nauk SSSR, Fiz. Tverd. Tela*, 1976, No. 1, p. 170.

The use of the method of secondary ion-emission is proposed in this paper to study the surface of Al_{0.5}Se_{0.5} semiconductor compounds. This method was used successfully previously [1] to study the surface reactions on the atomic level.

The research performed demonstrated that the mass spectrum of the secondary helium ion-emission contains two groups of particles: 1) those knocked out of the adsorbed layer and 2) those knocked out of the gallium arsenide lattice.

In the first group ions of the Ga⁺, Ga²⁺, and Ga³⁺ type were observed. The origin of which is related to the surface contamination. The study of the temperature dependence of these ions demonstrated that the gallium arsenide surface is cleaned in a vacuum of 10⁻⁷ mm Hg at a temperature of 500°C.

In the second group of particles, ions of the Ga⁺ type were observed. In this paper there is a discussion of possible mechanisms of their occurrence connected with the characteristic features of the chemical bond in gallium arsenide.

A study was made of certain aspects of the application of the method of secondary ion-emission to the study of the processes of the formation of nucleating centers for growth of heteroepitaxial layers.

BIBLIOGRAPHY

1. Ya. M. Fogel, *Usp. Progress in the Physical Sciences*, No. 91, 1975, 1967.

USSR

UDC 576.858.6:616.155.392

BARINSKIY, I. F., SHURLADZE, A. K., BOCHAROV, A. F., FILATOV, F. P., and
DEMENT'YEV, I. V., Institute of Virology imeni D. I. Ivanovskiy, Academy of
Medical Sciences USSR, Moscow

"Leukocytic Virus of Human Leukemia"

Moscow, Voprosy Virusologii, No 6, Nov/Dec 70, pp 729-730

Abstract: Three virus strains were isolated from donor cultures obtained from leukemia patients. The strains were not stable and decomposed on treatment with ether or after thermo-inactivation at 60°C for 30 minutes. They were apathogenic with respect to test animals (rabbits, adult mice, rats, guinea pigs) and chick embryos. They did not exhibit pronounced cytopathic activity in lung tissue and similar cultures. The leukocytic leukemia virus was found to have a density of 1.184 g/cm³, which corresponds to the densities of known leukosis viruses of mice and birds. Electron-microscopic studies established the existence of typical leukemia particles with the characteristic morphology.

1/1

USSR

UDC 616.988.25-092.9-095.37:576.858.095.383

LEONT'YEVA, N. A., FOMINA, A. N., IDRISOVA, Z. V., SHUEBLADZE, A. K., and
GALEGOV, G. A., Institute of Virology imeni D. I. Ivanovskiy, Academy of
Medical Sciences USSR, Moscow

"Combined Use of Interferon and Some Styrylquinolines in Cell Culture and in
Experimental Arbovirus Infection"

Moscow, Voprosy Virusologii, No 4, Jul/Aug 72, pp 482-485

Abstract: The synergistic prophylactic and therapeutic effects of interferon and styrylquinolines were studied in chick embryo fibroblast cultures and white mice infected with Venezuelan equine encephalomyelitis (VEE) and Western equine encephalomyelitis (WEE) viruses. The following compounds were employed: hydrate of 2-(4¹-bromostyryl)-4-(delta-diethylamino-alpha-methylbutylamino)-7-chloroquinoline triphosphate (R-29P), 2-(3¹-methoxy-4¹-hydroxystyryl)-4-(delta-diethylamino-alpha-methylbutylamino)-6-methoxyquinoline triphosphate (R-43P), and 2-(3¹-methoxy-4¹-hydroxystyryl)-4-(delta-ethylamino-alpha-methylbutylamino)-7-chloroquinoline triphosphate (R-42P). In cell culture these compounds reduced infectious titers of VEE and WEE virus by 2 and 2.6 lg respectively. When used in combination with interferon, these compounds reduced the titers by 6.6 and 7.5 lg respectively. R-42P was the most effective. When used on white mice 1/2

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USSR

LEONT'YEVA, N. A., et al., Voprosy Virusologii, No 4, Jul/Aug 72, pp 482-485

infected with WEE virus, R-42P administered twice at 9 mg/ml to animals with 0.03 ml 10 LD₅₀ (minimum dosage) resulted in the highest survival rate (35%). Combined 2-time administrations of interferon prior to WEE infection and R-42P after infection resulted in enhancement of the protective antiviral effect and prevented development of disease in 60-75% of the animals. Thus interferon and styrylquinolines act synergistically in response to arbovirus infection, indicating that their combined use may be effective in preventing and treating such infections.

2/2

SHUBLADZE A.M

Automatic

USSR

TEKH. YANOV, S.V.; UTYIN, V.I.; TARIN, V.A.; KOSTILEVA, N.Ya.; SHUBLADZE, A.M.; YEREMOV, V.S.; DZHOZHETSKY, Ye.N.

JPRS 53475, 24 Jan 1971
UDC 62-50

"Theory of Systems with Variable Structure" (book)

Teoriya Sistem s Peremennoy Strukturou (English version above), Moscow, Nauka Press, 1970, 592 pp

Annotation: This book presents a new direction in the theory of automatic control — the theory of systems with variable structure (VSS) belonging to the class of nonlinear automatic control systems. A broad range of problems is covered. The problems of control of objects with constant and variable parameters in the mode of free motion and with external perturbing forces are studied. Considerable attention is given to solution of the problems of stability of the systems in question. Methods are suggested for controlling objects with many controlled quantities. Methods are presented for synthesizing adaptive systems with variable, stable solutions. The capabilities of methods

1/9 Tech. p. Control theory in the USSR

- 10 -

USSR

UDC 62-50 3

YEMEL'YANOV, S.V.; UTKIN, V.I.; TARIN, V.A.; KOSTYLEVA, N.Ye.; SHUPLADZE, A.M.; YEZEROV, V.B.; DUBROVSKIY, Ye.N.

"Theory of Systems with Variable Structure" (book)

Teoriya System s Peremennoy Strukturoy [English version above], Moscow, Nauka Press, 1970, 592 pp

Annotation: This book presents a new division in the theory of automatic control -- the theory of systems with variable structure (VSS) belonging to the class of nonlinear automatic control systems. A broad range of problems is covered. The problems of control of objects with constant and variable parameters in the mode of free motion and with external perturbing forces are studied. Considerable attention is given to solution of the problem of stability of the systems in question. Methods are suggested for controlling objects with many controlled quantities. Methods are presented for synthesis of adaptive systems with variable, simple solutions. The capabilities of methods

1/9

- 10 -

USSR

YEMEL'YANOV, S.V., et al., Teoriya Sistem s Peremennoy Strukturay, Moscow, Nauka Press, 1970, 592 pp

from the theory of systems with variable structure with incomplete information on the state of the system are studied. Problems related to the application of variable structure systems in problems of filtration are analyzed; a qualitative comparison of linear optimal filters and filters with variable structure is presented.

181 figures; 137 biblio. refs.

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YEMEL'YANOV, S.V., et al., Teoriya Sistem s Peremennoy Strukturay, Moscow, Nauka Press, 1970, 592 pp

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YEMEL'YANOV, S.V., et al., Teoriya Sistem s Peremennov Strukturoy, Moscow, Nauka Press, 1970, 592 pp

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YEMEL'YANOV, S.V., et al., Teoriya Sistem s Peremennoy Strukturou, Moscow, Nauka Press, 1970, 592 pp

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YEMEL'YANOV, S.V., et al., Teoriya Sistem s Peremennoy Strukturay, Moscow, Nauka Press, 1970, 592 pp

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YEMEL'YANOV, S.V., et al., Teoriya Sistem s Peremennoy Strukturay, Moscow, Nauka Press, 1970, 592 pp

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- 14 -

1/2 018 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--PATHOGENESIS OF THROMBOEMBOLIC COMPLICATIONS IN RHEUMOCARDITIS -U-

AUTHOR--(02)--TSINTSADZE, I.N., SHUBLADZE, V.I.

COUNTRY OF INFO--USSR

SOURCE--TERAPEVTICHESKIY ARKHIV, 1970, VOL 42, NR 4, PP 110-115

DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--EMBOLISM, HEART DISEASE, RHEUMATIC DISEASE, THROMBOSIS, BLOOD
VESSEL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1990/0932

STEP NO--UR/0504/70/042/004/0110/0115

CIRC ACCESSION NO--AP0109089

UNCLASSIFIED

2/2 018

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0109089

ABSTRACT/EXTRACT--(U) GP-O- ABSTRACT. A DETAILED ANALYSIS IS GIVEN OF THE CLINICO ANATOMICAL MATERIAL (65 CASE HISTORIES OF PATIENTS WITH RHEUMCCARDITIS ACCOMPANIED BY THROMBOEMBOLIC COMPLICATIONS AFFECTING THE INTERNAL ORGANS, AND AUTOPSY FINDINGS). THE AUTORHS COME TO THE CONCLUSION THAT IT IS VASCULAR THROMBOSIS PROVOKED BY THE PRESENCE OF RHEUMATIC VASCULITIS BUT NOT EMBOLISM THAT IS THE MAIN CAUSE OF THESE COMPLICATIONS. FACILITY: 1 YA TERAPEVTICHESKAYA KAFEDRA TBILISSK INST. USOVERSH. VRACHEY.

UNCLASSIFIED

1/2 032 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--CRITICAL OUTPUT OF SYNCHRONIC HIGH SPEED TURBOGENERATORS OF HIGHER
FREQUENCY --U-
AUTHOR--(03)--RABINOVICH, I.N., SHUBOV, I.G., EYBSHITS, A.G.
COUNTRY OF INFO--USSR
SOURCE--MOSCOW, ELEKTRICHESTVO, NO 2, 1970, PP 69-72
DATE PUBLISHED-----70

SUBJECT AREAS--ELECTRONICS AND ELECTRICAL ENGR., ENERGY CONVERSION
(NON-PROPULSIVE)
TOPIC TAGS--HIGH FREQUENCY, SYNCHRONOUS GENERATOR, CIRCUIT PARAMETER,
THERMAL EFFECT, VIBRATION STRESS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRA--1999/1225

STEP NO--UR/0105/70/000/002/0069/0072

CIRC ACCESSION NO--AP0123189

UNCLASSIFIED

2/2 032

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0123189

ABSTRACT/EXTRACT--(U) GP-O- ABSTRACT. LIMITATIONS ARE STUDIED WHICH ARE ASSOCIATED WITH THE DESIGN OF HIGH SPEED (N IS GREATER THAN 3,000 RPM) SYNCHRONIC GENERATORS OF HIGH FREQUENCY (FOR EXAMPLE 400 CPS). THESE LIMITATIONS CONSIST OF THE FOLLOWING: ELECTROMAGNETIC LOADS WHICH DETERMINE THE INDUCTIVE RESISTANCE AND OVERHEATING OF COILS DURING A GIVEN METHOD OF COOLING, LINEAR VELOCITY AT THE ROTOR PERIPHERY WHICH IS RELATED TO BANDAGE STRENGTH, AND THE ACTIVE LENGTH OF THE ROTOR WHICH DETERMINES MACHINE VIBRATION. VALUES ARE GIVEN FOR THE CRITICAL OUTPUT OF THE TURBOGENERATOR FOR A GIVEN RATE OF ROTATION AND THE STATED LIMITATIONS TAKEN INTO CONSIDERATION. ORIGINAL ARTICLE: FOUR TABLES.

UNCLASSIFIED

Nuclear Science and Technology

USSR

UDC 621.039.52

KRASIN, A. K., NESTERENKO, V. B., KOLYKHAN, L. I., BUBNOV, V. P., IL'IN, A. YA., SILZOV, V. P., and SHUFROV, YU. V.

"Experimental Powder Installation With Gas-Cooled Fast-Neutron Reactor and Dissociating Heat-Transfer Medium (BRG-20)"

Dissotsiiruyushch. Gazy kak Teplonositeli i Rab. Tela Energ. Ustanovok' (Dissociating Gases as Heat Transfer Media and Working Fluids of Power Installations — collection of works), Minsk, Nauka i Tekhn. Press, 1970, pp 42-47 (from Referativnyy Zhurnal-Yadernyye Reaktory, No 4, 1971, Abstract No 4.50.134)

Translation: The possibility is studied of creating an experimental pilot scale atomic power plant with a gas-cooled fast-neutron reactor with dissociating coolant. The parameters of the installation and required volume of experimental study are discussed. 2 figures, 4 biblio. refs.

1/1

USSR

UDC 546.33:547.468.32.024'212

BIKIMAN, B. I., URINOVICH, E. M., KIRIEVA, A. YU., SHUGAL, N. F.,
DYATLOVA, N. M. (All-Union Scientific Research Institute of Chem-
ical Reagents and Especially Pure Chemical Substances (IREA)

"Study of Hydroxyethylindenediphosphonic Acid and Its Sodium Salt"

Moscow, Zhurnal Neorganicheskoi Khimii, vol 18, No 9, Sept 1973,
pp 2406-2409

Abstract: The trisodium salt of hydroxyethylindenediphosphonic acid was prepared by adding NaOH to an aqueous solution of the free acid (synthesis of acid is referenced) in distilled water, cooled by ice. Chemical analysis of the salt verified its elemental composition, and IR absorption spectra confirmed the structure of the free acid and the salt. Potentiometric titration showed two protons in the salt and five in the acid. The acid loses its water of crystallization ($0.5 \text{ H}_2\text{O}$) in one step at 76°C , while the salt loses 2 molecules at 116°C and the other 2.5 at 190°C . In aqueous solution the salt has a neutral pH and is recommended as a complexing agent at this pH.

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USSR

UDC 547.1'118-386.543

KIREYEVA, A. YU., SHUGAL, N. P., and DYATLOVA, N. M., All Union Scientific Research Institute of Chemical Reagents and Ultra Pure Chemical Compounds

"Reaction of Trivalent Iron with Glycine-N,N-bis(methylenephosphonic) Acid"

Moscow, Zhurnal Neorganicheskoy Khimii, Vol 18, No 10, Oct 73, pp 2685-2691

Abstract: An investigation has been carried out of the complex formation of glycine-N,N-bis(methylenephosphonic) acid with iron (III). Formation of stable, water soluble, normal and hydroxylated complexes of the general composition $Me:K = 1:1$ has been shown to take place by means of pH-metry and high frequency titration. Their stability constants have been calculated. It has been shown that the proton located on the nitrogen atom is the most basic one and dissociates last. The composition of an insoluble iron complex ($pH < 4.5$) has been determined by the turbidimetric method. The structure $H_2 FeL_3 \cdot 3H_2O$ being proposed on the basis of IR spectrophotometric data.

Thermal stability of the solid complex has been investigated.

1/1

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USSR

UDC 612.822.1.015.33:612.58

SHUGALEI, V. S., KRICHEVSKAYA, A. A., and GERSHENOVICH, Z. S., Chair of Biochemistry, Rostov State University

"The Resistance of Hibernating Hamsters (*Cricetus auratus*) to the Effect of Increased Oxygen Pressure"

Leningrad, Zhurnal Evolyutsionnoy Biokhimii i Fiziologii, Vol 6, No 5, Sep/- Oct 70, pp 523-526

Abstract: The effect of oxygen at a pressure of 5 atm on hibernating and nonhibernating hamsters was studied. The content of ammonia, urea, glutamine and gamma-aminobutyric, aspartic, and glutamic acids in the brain was determined. Winter hibernation was found to protect the animals against the toxic effects of oxygen under pressure; the animals were not aroused during 8 hours of hyperoxia. The concentration of low-molecular-weight nitrogen compounds in the brain did not differ from that found in animals hibernating under usual conditions. Urea may stabilize proteins, as is indicated by the increased urea content found in the brain tissue. This enhanced stability of brain protein may be the basis for the resistance of the entire organism of the hibernating animal to the effects of extreme conditions.

1/1

USSR

TARASENKO, F. P., SHULENIN, V. P.

"One Simple Method of Comparison of the Powers of Structure d Matching Tests"

Tr. Sib. fiz.-tekhn. in-ta pri Tomsk. un-te [Works of Siberian Institute of Physics and Technology of Tomsk University], 1973, No 63, pp 147-153
(Translated from Referativnyy Zhurnal - Kibernetika, No 8, 1973, Abstract No 8 B168 by D. Chibisov)

Translation: The statistics of many nonparametric criteria of agreement can be looked upon as estimates of some distance $\rho(F,G)$ between hypothetical and alternative distributions. It is affirmed that the power of the corresponding criteria is determined by the values of $\rho(F,G)$ and recommendations are given for comparison of powers on this basis.

Abstractor's note. This method of comparison of powers is incorrect. For example, for the Kolmogorov criterion, the power should then depend only on $\sup|F(x)-G(x)|$, which is of course not so.

1/1

1/2 023 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--DYNAMICS OF THE AMPLITUDE OF PRIMARY AND ASSOCIATIVE RESPONSES
DURING CONDITIONING -U-
AUTHOR--SHUGALEV, N.P. S
COUNTRY OF INFO--USSR
SOURCE--ZHURNAL VYSSHEY NERVNOY DEYATEL'NOSTI, 1970, VOL 20, NR 3, PP
499-505
DATE PUBLISHED-----70

SUBJECT AREAS--BEHAVIORAL AND SOCIAL SCIENCES, BIOLOGICAL AND MEDICAL
SCIENCES
TOPIC TAGS--CONDITIONED REFLEX, EXPERIMENTAL PSYCHOLOGY,
ELECTROPHYSIOLOGY, BRAIN

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1997/1934 STEP NO--UR/0247/70/020/003/0499/0505
CIRC ACCESSION NO--AP0120578
UNCLASSIFIED

2/2 023

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0120578

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. AN ALIMENTARY INSTRUMENTAL
CONDITIONED REFLEX TO FIVE FLASHES OF LIGHT PRESENTED ONCE IN A SECOND
WAS ELABORATED IN FOUR CATS WITH CHRONICALLY IMPLANTED ELECTRODES.
DURING ITS FORMATION, THE DYNAMICS WAS STUDIED OF THE AMPLITUDE
CHARACTERISTICS OF THE NEGATIVE COMPONENTS OF EVOKED POTENTIALS IN THE
MIDDLE SUPRASYLVIAN AND POSTERIOR LATERAL CONVOLUTIONS TO THE FIRST
FLASH OF THE SERIES. THE PERCENTAGE OF CORRECT RESPONSES DURING THE
EXPERIMENT AND THE DURATION OF THE MOTOR REACTION LATENCY WERE USED AS
BEHAVIORAL CRITERIA OF CONDITIONING. A DISTINCT PARALLELISM WAS
REVEALED BETWEEN THE DYNAMIC OF THE AMPLITUDES OF THE ASSOCIATIVE AND
PRIMARY RESPONSES AND THE CHANGES IN THE SIGNAL SIGNIFICANCE OF THE
STIMULUS IN THE PROCESS OF CONDITIONING. FACILITY: LABORATORY
OF CONDITIONED REFLEXES, INSTITUTE OF BRAIN, USSR ACADEMY OF MEDICAL
SCIENCES, MOSCOW.

UNCLASSIFIED

1/2 C18 UNCLASSIFIED PROCESSING DATE--20NDV70
TITLE--ULTRAVIOLET AND VISIBLE ABSORPTION SPECTRA OF COMPLEXES OF
TRIVALENT METALS WITH ACETYLACETONATE AND ITS ANALOGS -U-
AUTHOR-(G3)-YURCHENKO, E.N., AVDEYEV, V.I., SHUGAM, YE.A.
COUNTRY OF INFO--USSR
SOURCE--TEOR. EKSP. KHIM. 1970, 6(1), 84-90
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--UV SPECTRUM, METAL COMPLEX COMPOUND, ACETYLACETONATE, TITANIUM
COMPOUND, CHROMIUM COMPLEX, COBALT COMPLEX, ABSORPTION SPECTRUM
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--3002/1168 STEP NO--UR/0379/70/006/001/0084/0090
CIRC ACCESSION NO--AP0128590
UNCLASSIFIED

2/2 018

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NC--AP0128590

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE SPECTRA OF ACETYLACETONATES (ACAC) OF TI, CR, AND CO WERE CALCD. BY USING THE MO LCAO METHOD OF MULLIKEN-HELPMOLZ-WOLFSBERG IN THE SCF APPROXN. ACCORDING TO THE ORBITALS OF THE METAL, AND THE COORDINATED O ATOM. THE SINGLE ELECTRON ENERGY LEVEL SCHEMES OF TI(ACAC) SUB3, CR(ACAC) SUB3, AND CO(ACAC) SUB3 AND THE ASSIGNMENTS OF THE TRANSITIONS ARE GIVEN. THE CALCD. WAVENOS. OF THE TRANSITIONS AND THE OSCILLATOR STRENGTHS ARE COMPARED WITH THE EXPTL. VALUES. THE COMPARISON OF THE SPECTRA OF THE 3 COMPLEXES ENABLED A MORE OBJECTIVE INTERPRETATION OF THE BANDS. SIMILARLY THE COMPLEXES OF TI, CR, AND CO WITH DIBENZOYLMETHANE (DBM) WERE CALCD. IN THE SINGLE ELECTRON ENERGY LEVEL SCHEMES OF THE COMPLEXES TI(DBM) SUB3, CR(DBM) SUB3, AND CO(DBM) SUB3 THE LEVELS OF THE CORRESPONDING ACETYLACETONATES ARE RETAINED. ALL PECULIARITIES IN THE LONGWAVE TRANSITIONS OF ACETYLACETONATES WERE CHARACTERISTIC FOR THE DBM COMPLEXES. THE SPECTRA OF THE DIBENZOYLMETHANES DIFFER MAINLY FROM THAT OF ACETYLACETONATES BY THE OCCURRENCE OF THE BENZENE LEVELS, NAMELY BY THE TRANSITION PHI SUB1 PHI, WHICH DISPLAYS A BAND OF HIGH INTENSITY AT 45,000 CM PRIME NEGATIVE1. FACILITY: IZHEVSK. MEKH. INST., IZHEVSK, USSR.

UNCLASSIFIED

USSR

UDC 577.1:615.7/9

SHUGAYEV, B. B.

"Analysis of the Effect of Thiols on the Central Nervous System"

V sb. Khimiya serarorgan. sovedin., soderzhashchikhsya v neftyakh i nefteproduktakh (Chemistry of Organosulphur Compounds Contained in Petroleum and Petroleum Products -- collection of works), Vol 9, Moscow, Vyssh. shkola, 1972, pp 552-558 (from RZh-Biologicheskaya Khimiya, No 10, 1973, Abstract No 10F2096)

Translation: The toxicity of mercaptans was analyzed on intraperitoneal administration to rats. As the alkyl radical of tertiary mercaptans becomes longer their toxicity decreases regularly with the exception of tertiary octylthiol (tert-I). This compound has the strongest excitatory effect on the central nervous system. A comparison of the primary, secondary and tertiary I demonstrated the effect of the position of the mercapto group on the toxicity and nature of the effect; the primary I is the narcotic and is part of the general thiol series with respect to toxicity; the tertiary I has a psychosomimetic effect. The pharmacological analysis of the neurotropic effect of tertiary I using toxin analyzers (harmane, arecoline, strichnine and urethane) demonstrated the predominant directional nature of the exciting

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SHUGAYEV, B. B., Chemistry of Organosulphur Compounds Contained in Petroleum and Petroleum Products, Vol 9, Moscow, Vyssh. shkola, 1972, pp 552-558

effect of the tertiary I on the cortex, the mesencephalon and the cholinoreactive structures of the central nervous system. On administering close to LD_{50} to rats, significant inhibition of the choline esterase of the brain was discovered after secondary butylthiol and definite inhibition of the choline esterase occurred after the tertiary thiols (C_6 , C_8 , C_9 and C_{12}).

The C_{15} tertiary thiol did not affect the choline esterase activity. The conclusion was drawn regarding the high selectivity of the effect of tert-I on the central nervous system which cannot be explained by its effect on the cholineesterase activity.

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USSR

UDC:629.78.015:535.6.001.5

MAKOVSKIY, Yu. F., SHUGAYEV, E. V.

"Arrival of a Shock Wave at a Wedge Washed by a Supersonic Stream"

Uch. Zap. Tsentr. Aerogidrodinam. In-ta [Scientific Writings of Central Institute of Aerodynamics and Hydrodynamics], 1973, 4, No 3, pp 115-117
(Translated from Referativnyy Zhurnal Raketostroyeniye, No 11, 1973, Abstract No 11.41.98, from the resume)

Translation: A description is presented of an experimental study of the impact of a shock wave on a wedge with a half aperture angle of 5° , located in a supersonic stream, with M number of the stream $M_1=1.46$ and of the incident shock wave $M_2=1.51$. Values of gas density in various areas of the flow produced using an interferometer are presented.

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1/2 017 UNCLASSIFIED PROCESSING DATE--18SEP70
TITLE--CRYSTAL CHEMICAL DATA ON CHELATE COMPOUNDS OF N SUBSTITUTED
DERIVATIVES OF SALICYLALDIMINE. VII. CIS OCTAHEDRAL STRUCTURE OF
AUTHOR--(03)--SHKOLNIKOVA, L.M., OBODOVSKAYA, A.YE., SHUGAM, YE.A.
COUNTRY OF INFO--USSR
SOURCE--ZH. STRUKT. KHIM. 1970, 11(1), 54-61
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--ZINC COMPLEX, CRYSTAL LATTICE, X RAY STUDY, LEAST SQUARE
METHOD, METHOXY COMPOUND
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1987/0409 STEP NO--UR/0192/70/011/001/0054/0061
CIRC ACCESSION NO--AP0104041
UNCLASSIFIED

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PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0104041

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ZINC SALICYLAL,O,ANISIDINATE (BIS(O,(N,(O,METHOXYPHENYL)FORMIMIDOYL) PHENOLATO)ZINC) WAS INVESTIGATED BY X RAY ANAL. THE PARAMETERS OF THE MONOCLINIC LATTICE ARE: A EQUALS 12.727 PLUS OR MINUS 0.004, B EQUALS 12.552 PLUS OR MINUS 0.004, C EQUALS 14.806 PLUS OR MINUS 0.005 ANGSTROMS, BETA EQUALS 94.1 PLUS OR MINUS 0.2DEGREES, ZETA EQUALS 4, AND THE SPACE GROUP IS P2 SUB1-C. THE STRUCTURE IS DETD. BY THE HEAVY ATOM METHOD OF A 3 DIMENSIONAL DISTRIBUTION OF ELECTRON D. (6 CYCLES OF SUCCESSIVE APPROXNS.) AND IS MADE MORE PRECISE BY THE METHOD OF LEAST SQUARES IN ISOTROPIC APPROXN., R EQUALS 13.6PERCENT. ANOMALOUS PHYS. AND CHEM. PROPERTIES OF THE COMPLEX ARE CONNECTED WITH A SHARING IN THE COMPLEX FORMATION OF MEO ATOMS OF O AND WITH AN INCREASE OF DENTATICITY OF THE LIGAND BECAUSE OF THIS. AS A RESULT OF THE FORMATION OF AN ADDNL. INNER COMPLEX BOND OF ZN AND O (METHOXYL) THE TETRAHEDRAL COORDINATION OF THE ZN ATOM CHANGES TO CIS OCTAHEDRAL WITH PRESERVATION OF THE SYMMETRY OF THE POLYHEDRON C SUB2. EACH HALF OF THE MOL. REPRESENTS A SYSTEM OF 4 CONDENSED RINGS: 2 METAL RINGS AND 2 AROMATIC RINGS. THE INTERAT. DISTANCES IN THE COORDINATED OCTAHEDRON ARE ZN AND O EQUALS 1.965 AND 1.980, ZN AND O EQUALS 2.046 AND 2.049, ZN AND O (FROM MEO GROUP) EQUALS 2.405 AND 2.406 ANGSTROMS. THE BOND LENGTHS BETWEEN THE LIGHT ATOMS HAVE THE NORMAL VALUES AND CONFORM WELL TO ANALOGOUS DATA FOR RELATED COMPOS.

UNCLASSIFIED

USSR

UDC 621.187:669.018.2

CHERNYAKOVA, L. YE., SHUGAYENKO, V. K., VORONTSOV, N. M., SANDLER, N. I.,
and PATSEKA, R. F., Ukrainian Scientific Research Institute of Metals

"Electron-Microscope Study of Excess-Phase Precipitation in the Deformation of
Alloy 36NKhTYu"

Moscow, Metallovedeniye i Termicheskaya Obrabotka Metallov, No 8, Aug 73,
pp 16-19

Abstract: The structural properties of alloy 36NKhTYu containing (in %): 0.04 C, 1.1 Mn, 0.36 Si, 36 Ni, 12-13 Cr, 3 Ti, 1.2 Al, balance-Fe, were studied in relation to degree of deformation and tempering mode. Strip samples 0.15 mm thick were water quenched from 1100°C, rolled with a high degree of reduction (50-70%), and tempered at 600-750°C for two hours. It was found that decomposition of the solid solution in the alloy with precipitation of the metastable gamma'-phase (NiFe)₃ (TiAl) with an FCC lattice starts even in the deformation process: at 50% primarily along the grain boundaries and at 70% -- in the grain volume. Decomposition of the solid solution when deformed at 600-650°C is characterized by discontinuous precipitation along the grain boundaries and in 1/2

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CHERNYAKOVA, ET AL., Metallovedeniye i Termicheskaya Obrabotka Metallov, No 8, Aug 73, pp 16-19

the colonies of grains in the volume of metastable γ' -phase particles; at 700-750°C it is characterized by continuous precipitation of finely dispersed γ' -phase particles in the matrix volume. The formation of the stable intermetallic η -phase, leading to softening, starts during alloy deformation after tempering at 700°C for two hours. Three figures, eight bibliographic references.

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USSR

UDC 533.6.011.72

SHUGAYEV, F. V., and LISIN, YU. G.

"The Study of a Plane Shock Wave-Blunt Body Interaction in a Supersonic Flow"

Minsk, Inzhenerno-Fizicheskiy Zhurnal, Vol 21, No 3, Sep 71, pp 419-422

Abstract: An experimental study of a plane shock ($M=1.10-1.70$) interaction with a blunt body (cylinder with flat and spherical bluntness) in a supersonic gas flow ($M=1.25-1.60$), carried out in a two-diaphragm, rectangular (40×61 mm²) shock tube is described. Nitrogen is used as a working gas, and hydrogen and helium as the driving gases. The motion of a transient, incident and contact surface formed after interaction of a reflected shock wave with a shock in front of a body is studied and the results are presented in graphical form. Data on the location and velocity of a reflected shock wave on the symmetry axis for a blunt cylinder and a sphere, makes it possible to determine the time interval during which the reflected shock becomes stationary with respect to body. The contact surface attains the stagnation point of a body after a longer times. 1/1